



UMassMemorial

Barre Family Health Center

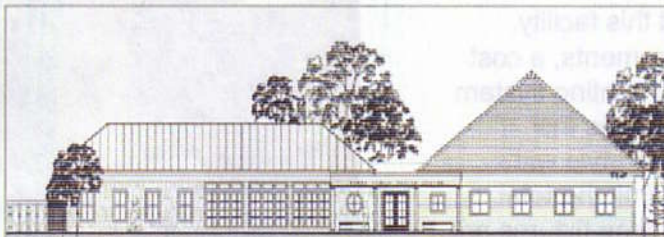
Advanced Building Features

- High Efficient Lighting Upgrade
- Lighting Controls
- High Performance Rooftop Units
- High Performance Windows
- Controls Upgrade
- Cool Roof



Project Description:

The new one story Barre Family Health Center in Barre, MA is a 20,000 square foot building that houses offices, exam rooms and medical procedure suites. By following the Advanced Buildings Program's protocol, the design team reduced the buildings projected annual energy use to 25% less than a basic code complaint design. By taking advantage of utility incentives, the payback for these upgrades was only 1.2 years. This project demonstrates that the Advanced Buildings protocol is effective even in medical facilities that are challenged by exceptionally stringent requirements for lighting, thermal comfort and ventilation. The new facility is also LEED certified.



Building Envelope:

Envelope improvements incorporated into the building design were a cool roof and better insulating glass windows. The windows used have improved Low E-coating with a U-value of 0.45, and shading coefficient of 0.34. These products were readily available and added less than \$1,500 to the project cost, with a return of over \$600 a year in annual savings.

Project Team

Owner:

UMass Memorial Health Care

Architect:

HDR /Warner + Associates, Inc. Architect

Engineer:

Fitzmeyer & Tocci Associates, Inc.

Energy Efficiency Incentives and Support:

National Grid



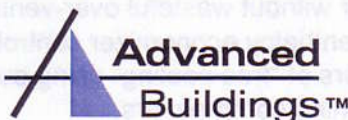
Fran Boucher

National Grid

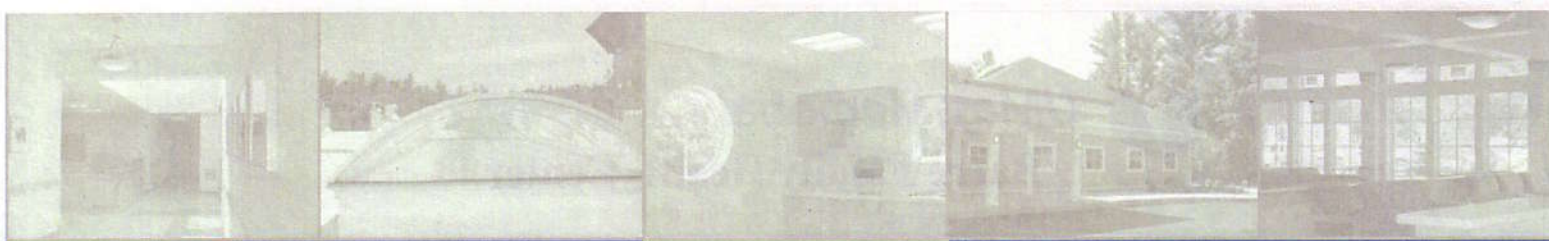
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[nationalgrid](http://www.nationalgrid.com)



High Performance Building Design Uses 23% Less Energy

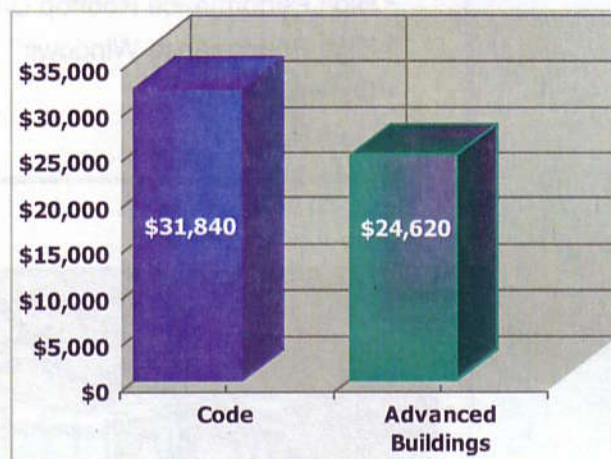
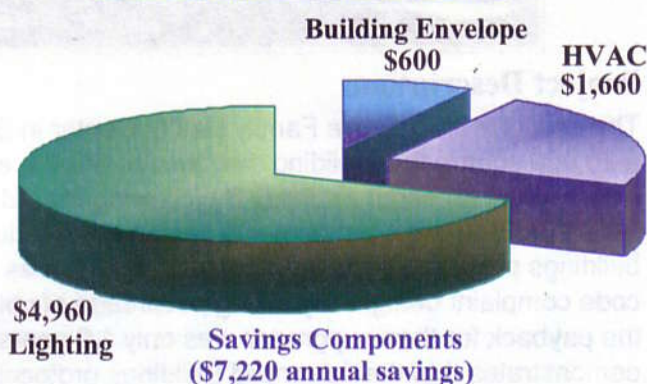
Savings Projections

Annual Energy Savings \$7,200

Additional cost for upgrades	\$44,400
Utility Incentives	- \$37,200
Net Owner Cost	\$ 7,200

Payback with Incentives - 1 year ROI 100%

23% Improvement Over Code



Lighting Savings Summary

The prominence of exam rooms with ceiling mounted privacy curtains as well as small offices, dictated the use of higher cost 2x2 light fixtures at this facility. Despite this and high light level requirements, a cost effective, energy-efficient, high quality lighting system was provided. The predominant fixture was the Cooper Accord enhanced T-5 recessed style with tuned lamp /ballasts combinations to limit the total lighting wattage. Beyond efficiency, these fixtures are far more attractive than the acrylic reflector troffers originally considered.



Mechanical Systems

High-efficient VAV rooftops using HFC-407C refrigerant, rated at 1.06 kW/ton under peak load, were installed at the facility. HFC-407C refrigerant is up to 20% more efficient than traditional HCFC-22. The RTU's were equipped with scroll compressors built with multiple steps of capacity control for higher part load efficiency. True airflow measurement stations assure adequate fresh air ventilation levels in the summer without wasteful over-ventilating in the winter. Dual enthalpy economizer controls provided additional hours of "free cooling" using outside air instead of running compressors.